Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] 1. A method for building a lookup table of a first curve representing a first function and a second curve representing a second function, wherein there is a mathematical transformation between the first function and the second function, the method comprising:
comparing a slope of the first curve with a slope of the second curve; and
storing either the first curve or the second curve based on a result of the comparison, wherein storing the first curve if the slope of the first curve is smaller than the slope of the second curve, and storing the second curve if the slope of the first curve is larger than the slope of the second curve.

[c2] 2. The method for generating an output corresponding to an input value via a first function with the use of a lookup table, wherein the lookup table only includes a plurality of first sampling points corresponding to a second function and there is a mathematical transformation between the first function and the second function, comprising:
receiving the input value;

generating the output value based on at least one of the first sampling points through performing the mathematical transformation on the first sampling point; and outputting the output value.

[c3] 3. The method of claim 2, wherein the first function is a sine function and the second function is a cosine function.

[c4] 4. The method of claim 2, wherein the first function is an arcsine function and the second function is an arccosine function.

[c5] 5. The method of claim 2, wherein the first function is an exponential function and the second function is a logarithmic function.

[c6] 6. The method of claim 2, wherein the second function further includes a first section and a second section and the first sampling points are only corresponding to the first section of the second function.

[c7] 7. The method of claim 6, wherein there is a second mathematical transformation between the first section and the second section of the second function and a plurality of second sampling points corresponding to the second section of the second function can be generated through performing the second mathematical transfor-

mation on the first sampling points.

[c8] 8. A method for generating an output value corresponding to an input value via a first function comprising a first section and a second section with the use of a lookup table, comprising:
prestoring a plurality of first sampling points corresponding only to a third section of a second function, wherein the second function further includes a fourth section and there is a first mathematical transformation between the first function and the second function;
receiving the input value corresponding to the first section;
generating the output value based on at least one of the first sampling points through performing the first mathematical transformation on the first sampling point; and
outputting the output value.

[c9] 9. The method of claim 8, wherein there is a second mathematical transformation between the third section and the fourth section and the output value generating step further comprises:
generating at least one of a second sampling point corresponding to the fourth section through performing the second mathematical transformation on at least one of the first sampling points; and
generating the output value based on the second sam-

pling point through performing the first mathematical transformation on the second sampling point.

[c10] 10. The method of claim 8, wherein there is a third mathematical transformation between the first section and the second section and the output value generating step further comprises:
generating at least one of a third sampling point corresponding to the first section through performing the first mathematical transformation on at least one of the first sampling points; and
generating the output value based on the third sampling point through performing the third mathematical transformation on the third sampling point.

[c11] 11. The method of claim 8, wherein there is a fourth mathematical transformation between the third section and the forth section and there is a fifth mathematical transformation between the first section and the second section, the output value generating step further comprises:
generating at least one of a fourth sampling point corresponding to the fourth section through performing the fourth mathematical transformation on at least one of the first sampling points;
generating at least one of a fifth sampling point corresponding to the first section through performing the first

mathematical transformation on at least one of the fourth sampling points; and

generating the output value based on the fifth sampling point through performing the fifth mathematical transformation on the fifth sampling point.

[c12] 12. An apparatus for determining an output value corresponding to an input value via a first function comprising a first section and a second section, comprising:

a lookup table for prestoring a plurality of first sampling points corresponding only to a third section of a second function, wherein the second function further includes a fourth section and there is a first mathematical transformation between the first function and the second function; and

a transformation device for generating the output value corresponding to the input value based on at least one of the first sampling points through performing the first mathematical transformation on the first sampling point.